DOCUMENT RESUME

ED 396 192 CG 025 816

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TITLE The Effect of Personal and School-Wide Goals on Deep Processing Strategies of At-Risk, Not At-Risk and Special Education Students.
INSTITUTION National Center for School Leadership, Urbana, IL.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Mar 92
NOTE 18p.; Paper presented at the Biennial Meeting of the Society for Research on Adolescence (4th, Washington, DC, March 19-22, 1992).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Aspiration; Adolescent Development; *Educational Environment; *Elementary School Students; *High Risk Students; Intermediate Grades; Junior High School Students; Middle Schools; Self Concept; Self Efficacy; Self Esteem; Self Motivation; Special Education; *Student Adjustment; Student Attitudes; *Student Educational Objectives; Student Motivation; Student School Relationship
IDENTIFIERS *Middle School Students

ABSTRACT

Middle school students (N=712) were surveyed about their achievement goals and cognitive processing strategies. Results suggest that academically at-risk students use deep strategies less and are less learning focused than not at-risk and special education students. Special education and at-risk students tended to be more ability-focused than not at-risk students. At-risk students perceived school culture to be less learning focused and more ability focused than not at-risk students. Multiple regression analyses suggest that being "learning-focused" is the best predictor of deep strategy usage for all three groups of students. Three tables and four figures present data and statistical analysis. Contains 19 references. (Author)

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The Effect of Personal and School-Wide Goals on Deep Processing Strategies of At-Risk, Not At-Risk and Special Education Students

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Paper presented at the Society for Research on Adolescence, Washington, D.C., March 1992. The Middle School Coalition is funded by the National Cneter for School Leadership at the University of Illinois through a grant from the Office of Educational Research and Improvement, Department of Education.

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Abstract

Middle school students (n = 712) were surveyed about their achievement goals and cognitive processing strategies. Results suggest that academically at-risk students use deep strategies less and are less learning focused than not at-risk and special education students. Special education and at-risk students tend to be more ability-focused than not at-risk students. At-risk students perceive school culture to be less learning focused and more ability focused than not at-risks students. Multiple regression analyses suggest that being "learning-focused" is the best predictor of deep strategy usage for three groups all students.

One of the most important contexts that adolescents experience is that of school. Most teens in the USA either attend a three year middle school or junior high school. However, research consistently has indicated that the contextual features of the junior high or middle school environment are in many ways antithetical to the very nature of adolescence (Feldhaufer, Midgley & Eccles, 1988). The mismatch between middle school students' developmental readiness and the contextual attributes of these schools suggests that school reform is necessary and essential at this level; nevertheless, middle schools are among the most neglected areas in educational change (Jackson & Hornbeck, 1989).

There is much support for the notion that the context of the school has a powerful influence on student learning and motivation (Maehr, 1991; Ames & Ames, 1989). Indeed, different environments often lead to different educational outcomes for students. Early adolescents may be particularly sensitive to the psychological climate or culture of the school (Eccles & Midgley, 1990). In fact, research suggests that the transition to middle school is a tumultuous and difficult period for most teenagers not due to the "biological" changes of puberty, but due more to the demands of a new educational and social environment (Simmons & Blyth, 1987; Eccles & Midgley, 1989).

Research has identified two types of achievement-related goals which students adopt when engaged in academic behaviors. These goals have been referred to as learning and performance goals (Dweck & Leggett, 1988).[1]

[1]Goals are called by various names in the literature. For example, learning goals also have been referred to as task-focused goals (Maehr & Midgley, 1991) or a mastery-orientation (Ames & Archer, 1988), while performance goals are also called ability goals (Dweck & Leggett, 1988) or ego-involvement (Nicholls, 1989).

Learning goals focus on the belief that learning should be engaged in for its own sake; students who adopt learning goals seek challenges, try to develop new skills, and attempt to feel a sense of mastery in a given domain (Nicholls, 1989; Maehr & Midgley, 1991). In contrast, students who adopt performance goals are primarily concerned with doing better than their peers; relative ability and comparisons become the main motivating factors in learning situations (Ames & Archer, 1988). Adoption of one type of goal over another can have dramatic cognitive outcomes. For example, students who adopt learning goals tend to use ***deep* cognitive strategies** such as self-regulation, prediction, and thinking about how what they learn relates to other forms of knowledge, while students who adopt performance goals use *surface* level strategies such as simple memorization (Nolen, 1988; Golan & Graham, 1990).

Research demonstrates that both personal factors and the context of the school can have dramatic effects on the types of goals which students adopt as well as on cognitive strategy usage (Maehr, 1991; Maehr & Fyans, 1989; Nolen, 1988). Individual difference variables such as self-efficacy and creativity are related to goal orientation (Schunk, 1985; Archer, 1990). But students also tend to know what is valued in their schools and classrooms, and this too has a powerful impact on the types of goals which students choose to endorse. For example, if a school places a great value on getting high grades and on being on the "honor roll," then students are likely to work toward those goals.

The present study examines the salience and usage of various motivational and cognitive factors in normally achieving, special education, and "at risk" adolescents. The study also explores the ways in which motivation and students' *perceptions* of the school environment influence the use of deep cognitive strategies.

Methods

Subjects

The sample includes 712 middle school students from a largely "blue collar" district near a major city in the midwest, and consists of 60 special education, 220 at risk and 396 not at risk students. The students represent two middle schools in the same district, each containing grades six through eight. The present sample includes all sixth and seventh grade students who were given permission to participate; over 75% of the students in each school received permission from their parents.

Procedure

Students responded to a questionnaire assessing self-efficacy, cognitive strategy use, personal goal orientation, and perceptions of the goals stressed in the school. All items were scored on a 5 point Likert scale. Classroom teachers were asked to rate their students as "at risk" for academic failure or "not at risk." These categories were broadly defined for teachers -- ***at risk*** merely referred to any students whom the teacher felt might be "at risk" for academic problems. Students were categorized as "special eduction" if they took at least one special education course. This strategy of determining the academic status of students has been used in similar studies with good results (Ames & Maehr, 1989; Midgley & Maehr, 1990).

Results

The motivational and cognitive variables presented all represent scales. Alpha values are presented in Table 1:

TABLE 1: SCALES AND ALPHA VALUES

Scale Name	Alpha Value
Learning-focused individual goal orientation	.73
Ability-focused individual goal orientation	.62
Self-efficacy	.71
Learning-focused school goal orientation	.67
Ability-focused school goal orientation	.69
Deep strategy use	.60

How do at risk, not at risk, and special education students differ on motivational and cognitive variables?

ANOVA was used to assess differences in perceived goals and strategy use among the three groups of students. Results are displayed in Table 2:

Table 2: ANOVA Analyzing Differences Among Risk Groups on Motivational Scales

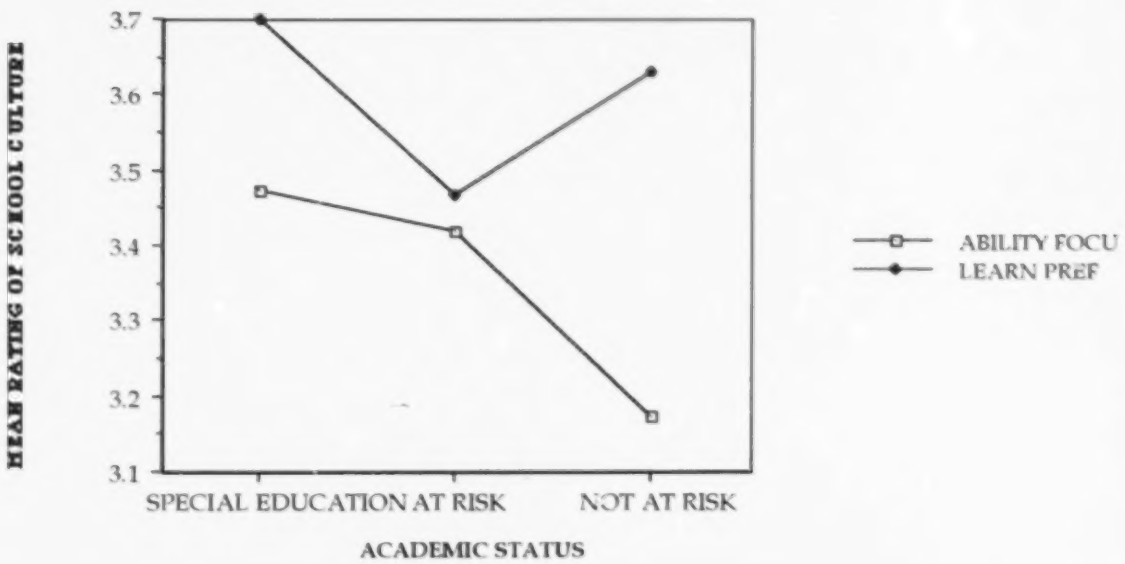
	Full sample	Special Ed.	At risk	Not at risk	F
Deep Strategies	3.37	3.34	3.25	3.45	5.13**
Learning-focused (Indiv.)	3.58	3.70	3.46	3.63	3.47*
Ability-focused (Indiv.)	3.10	3.25	3.03	3.12	1.25
Self-efficacy	3.57	3.60	3.60	3.57	3.60*
Learning-focused (school)	3.72	3.75	3.56	3.80	7.11***
Ability-focused (school)	2.58	2.72	2.75	2.47	8.99***

Post-hoc Scheffe test showed significant differences between at risk and not at risk students ($p<.05$) for deep strategy use, learning-focused (school), and ability-focused (school).

*** $p<.001$
** $p<.01$
* $p<.05$

At risk students differ from their not at risk peers on a number of constructs. Figure 1 displays the relationship between individual learning verses ability focus for the three groups.

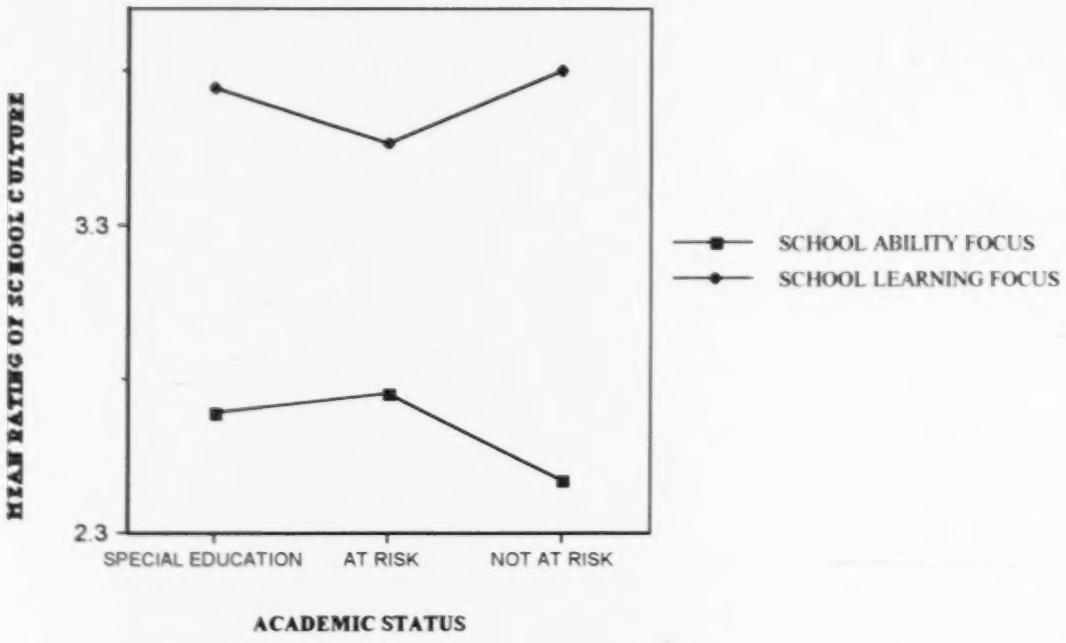
FIGURE 1: INDIVIDUAL MOTIVATIONAL ORIENTATION



The F-value for the individual learning focus orientation is significant, although post-hoc tests do not reveal significant differences between the three groups. However, a clear trend is evident: at risk students are less learning focused than special education and not at risk students. Special education and at risk students tend to be more ability focused than not at risk students, although this relationship does not reach significance.

Figure 2 describes perceptions of the school culture by academic group.

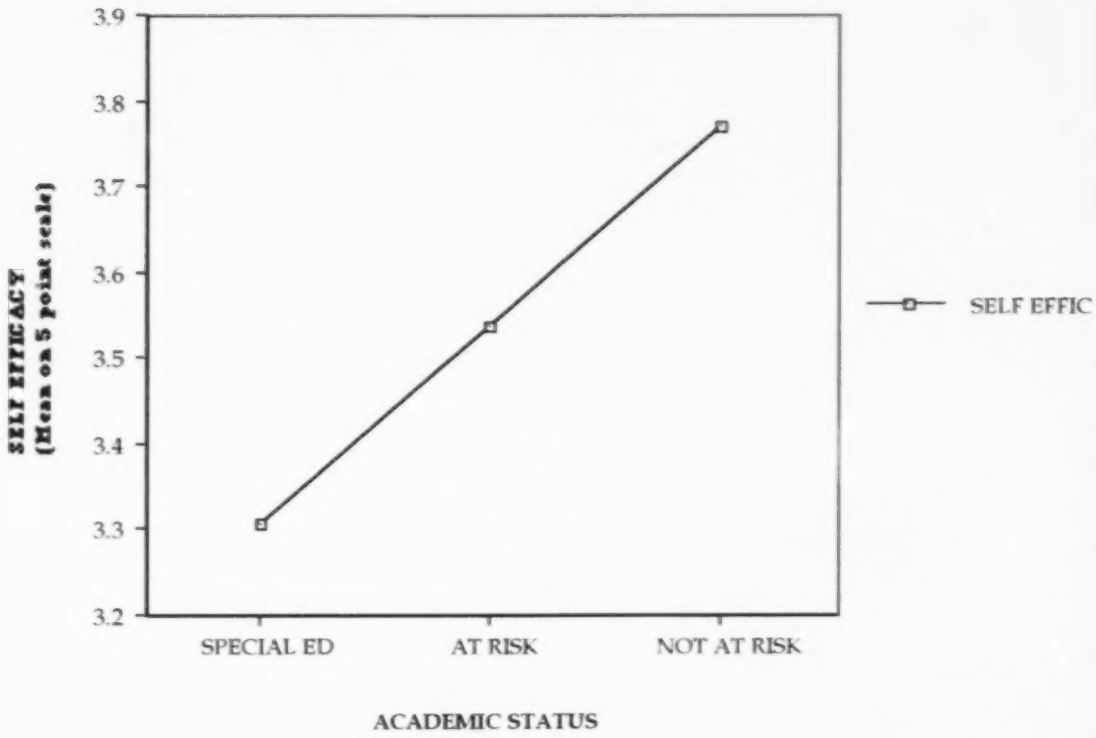
FIGURE 2: PERCEPTIONS OF SCHOOL



The at risk students perceive the school as a whole to be less learning-focused ($F=7.11$, $p<.001$) *and* more ability focused ($F=8.99$, $p<.001$) than the not at risk students. The special education students do not significantly differ from either group, although they appear to be closer to the not at risk than the at risk students on these measures.

Figure 3 shows the relationships between self-efficacy and academic status.

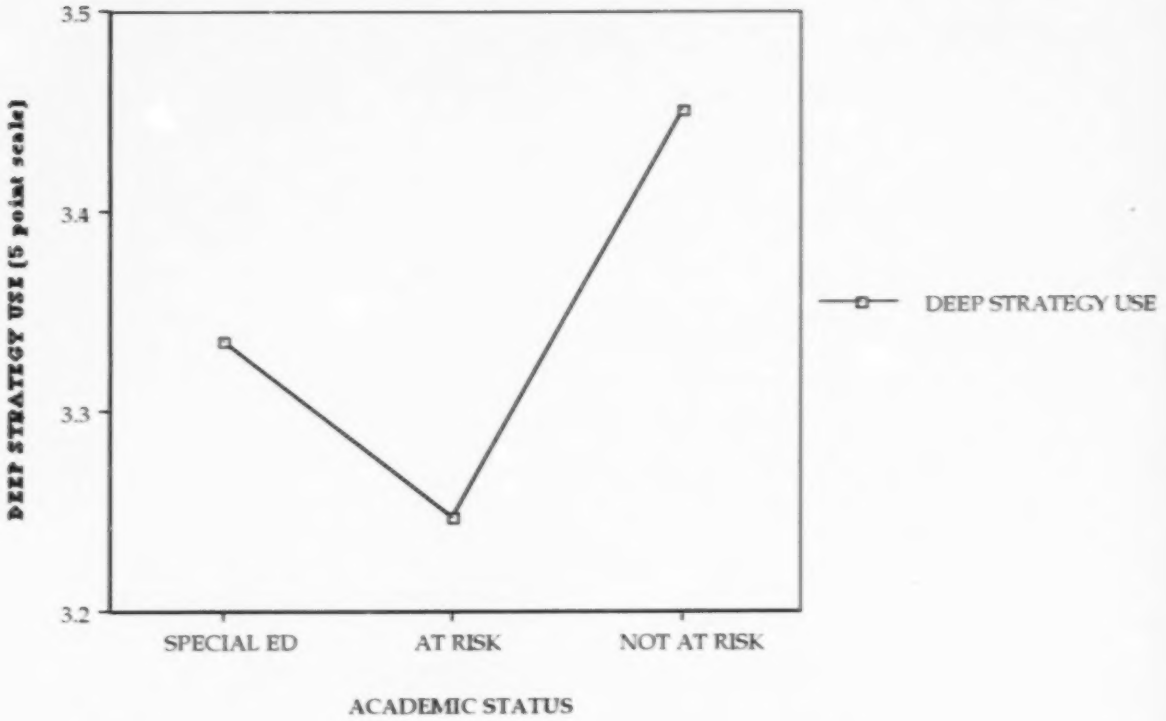
FIGURE 3: SELF EFFICACY



Although the post hoc Scheffe tests do not reveal significant differences among the three groups on self-efficacy, the overall F value is significant ($F=3.60$, $p<.05$). Nevertheless, there is a clear pattern in these results: special education students are less self-efficacious than at risk students, and at risk students are less self efficacious than not at risk students.

Figure 4 displays the relationship between deep cognitive strategy usage and academic status.

FIGURE 4: DEEP COGNITIVE STRATEGY USE



The at risk students use deep processing strategies significantly less often than not at risk and special education students ($F=5.13$, $p<.05$).

Four multiple regressions were run, each examining the contribution of perceived goals (personal and school-wide) and self-efficacy to deep strategy use. Results are displayed in Table 3:

Table 3: Betas For Regressions Predicting Deep Strategy Use for Special Education, At Risk and Not at Risk Middle School Students

	Learning-focused (individual)	Ability-focused (individual)	Self Efficacy	Learning-focused (school)	Ability-focused (school)	R squared
Entire Sample	.447***	.016	.153***	.143***	-.117**	.49***
Special Educ.	.419**	.069	.309*	.146	-.147	.61***
At Risk	.527***	.076	.145*	.145*	-.059	.50***
Not at Risk	.514***	-.029	.129**	.136**	-.135**	.45***

*** $p<.001$
** $p<.01$
* $p<.05$

The first regression, for all students in the sample, shows that an individual learning focus, self-efficacy, and a school perception of a stress on learning goals are all positively related to deep strategy usage, while beliefs in a school-wide stress on ability goals are negatively related to the use of deep strategies.

For the not at risk students, the same predictors remain significant, in the same direction. However, the separate regressions for the at risk and the special education students show different patterns of results. For the at risk students, perceptions of school-wide ability goals are no longer related to strategy use (beta=-.059, p>.05). But, for these students, a perception of school-wide learning goals is still related to deep cognitive strategy use when the other variables are accounted for.

The regression equation for special education students does not contain significant beta values for either of the school-wide goal perceptions; only self-efficacy and individual learning goals are significant predictors of deep strategy use. This suggests that for special education students, the school context may

be less important in determining individual learning strategies than in other middle school students who spend the majority of the day moving from class to class.

Discussion

This study confirms previous work suggesting that personal and school-wide learning or "task-focused" goals are related to the use of deep cognitive strategies. However, the present study also demonstrates that the "at risk," "not at risk" and "special education" labels that educators apply to early adolescents are related to distinct motivational and cognitive differences among these students. In addition, perceptions of school-wide goals are less powerful for special education students than for other early adolescents.

Nolen (1988) and other researchers (e.g. Meece, Blumenfeld, & Hoyle, 1988) have suggested that students' levels of motivation are directly related to their usage of different types of cognitive strategies. Students who adopt learning-goals are more likely to use deep strategies than students who value performance goals. This makes logical sense -- students who place high values on performance and relative ability are likely to utilize academic shortcuts -- why should a student bother to think about the meaning or importance of something, when all that is really necessary for success is memorizing facts for a test? Why should a student who values ability goals be intrinsically motivated to seek challenges and gain insights, if that is not what she is rewarded for?

The present study adds a new dimension to the analysis of what determines the usage of deep verses surface level cognitive strategies. The findings show that at risk students are less likely to use deep strategies, are less learning focused, and perceive the school to be less learning focused than not at risk and special education students. It may seem puzzling that the special

education students are not significantly different from the not at risk students; however, the special education classroom may exert a unique force of its own that accounts for these findings. Research has demonstrated that the individual classroom teacher can have a powerful effect on the types of goals and strategies that are utilized by students (Ames & Archer, 1988; Ames & Maehr, 1989); consequently, special education teachers who stress metacognitive awareness and who model appropriate behaviors and strategies may have a powerful influence on the strategies and perceptions of learning disabled students.

The fact that the at risk students differ from other students in goal perceptions and strategy usage suggests that these students may indeed be in "academic limbo," particularly at the middle school level. These students do not have the continued support that they had in elementary school from one teacher, *while the special education students still do have this support.* But also, these students may not be capable of fully adjusting to the new middle school environment, and consequently, they may not adopt contextually appropriate and adaptive goals and strategies.

It has been suggested that the new environment may be responsible for these observed cognitive and motivational differences -- the middle school simply may not be as supportive and nurturing as the elementary school (Wigfield, Eccles, MacIver, Reuman & Midgley, 1991). The present study supports this hypothesis: the results show a negative relationship between perceptions of the school as being ability focused and deep strategy usage; they also show a positive relationship between perceptions of a learning focused school environment and deep strategy use. However, these effects are not straightforward -- there are distinct differences among the three academic classifications of students. While the relationships remain strong for the not at

risk students, analyses show that for at risk students, perceptions of the school as being ability focused do not predict deep strategy use. This suggests that at-risk students may be less attentive to the competitive nature of the environment of the school -- for students who are academically at risk, stresses on ability and competition simply may not be perceived. For example, if a school has an honor roll which only contains the names of students who get "A's," then why should at-risk students bother to examine their metacognitive strategy usage? Such ability-focused aspects of the school may just not be meaningful to at risk students.

The results for the special education students are even more intriguing, for they clearly show that school-wide perceptions are unrelated to deep strategy usage. Special education students spend a good portion of the day segregated from their peers and most teachers; therefore, they may not even be aware of many school-wide goals and stresses. While the at risk students are at least *exposed* to this aspect of the school culture, for the special education students, this truly may represent another academic world.

These findings suggest the importance of understanding what factors influence students' perceptions of school goals, and of determining if changes can be made in school policies and practices that will positively influence students' perceptions of a school focus on learning and task mastery. That strategy use for special education students was unrelated to their perceptions of school goals may suggest that these students feel isolated and separated form the culture of the school as a whole.

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Appendix I: Items Used in Scale Construction

Individual Learning Focus (Alpha=.73)

I often choose projects that I will learn from, even if I know I will need to work very hard.
When I work hard in school, it's mainly because I like learning new things.
I like to learn new things.

Individual Ability Focus (Alpha=.62)

Doing better than other kids in my class is important to me.
I like to show my teachers that I'm smarter than some of the other kids.
If I were the only one in a class who could answer a question, I would feel really good.

Self-Efficacy (Alpha=.71)

I can do almost all the work in school if I keep working at it.
I can do even the most difficult school work if I try.
Even if the work in school is hard, I can learn it.
No matter how hard I try, there is some school work I'll never understand (recoded).
Some of the work we do in school is too hard for me (recoded).

School Learning Focus (Alpha=.67)

Teachers believe everyone can learn.
Teachers think how much you learn is more important than test scores.
Teachers like it when we think of new ways to solve problems.
We help each other with our work.
Students' ideas are listened to.

School Ability Focus (Alpha=.69)

Students compete against each other for grades.
Teachers get upset if we make mistakes.
Only a few students get praised for their school work.
Teachers treat students who get good grades better than other students.
This school only cares about grades.

Deep Cognitive Strategy Use (Alpha=.60)

I take my time to figure out my work.
I try to figure out as much as I can on my own before I ask my teacher for help.
In my spare time, I try to find out more about the things I am learning in school.
When I need help, I like it better when my teachers give me hints or clues than when they give me the answer.